

Species Tag:	29002	Species Name:	HCO+
Version:	3		Formyl cation /
Date:	Jan. 1997		Oxomethylium,
Contributor:	J. C. Pearson		X $^1\Sigma^+$
			$nu_2=0,1,2, nu_1=1, nu_3=1$
Lines Listed:	246	Q(300.0)=	145.8870
Freq. (GHz) <	3561	Q(225.0)=	106.5539
Max. J:	40	Q(150.0)=	70.4886
LOGSTR0=	-10.0	Q(75.00)=	35.3833
LOGSTR1=	-8.0	Q(37.50)=	17.8600
Isotope Corr.:	0.	Q(18.75)=	9.1023
Egy. (cm^{-1}) >	0.0	Q(9.375)=	4.7298
$\mu_a =$	3.30	A=	
$\mu_b =$		B=	44594.4
$\mu_c =$		C=	

The observed microwave lines are from R. C. Woods, T. A. Dixon, R. J. Saykally, and P. G. Szanto, 1975, Phys. Rev. Lett. **35**, 1269; K. V. L. N. Sastry, E. Herbst, and F. C. De Lucia, 1981, J. Chem. Phys. **75**, 4169; and F. C. van den Heuvel and A. Dymanus, 1982, Chem. Phys. Lett. **92**, 21, G. A. Blake, K. B. Laughlin, R. C. Cohen, K. L. Busarow and R. J. Saykally, 1987, Astrophys. J. **316**, L45; E. Hirota and Y. Endo, 1988, J. Mol. Spectrosc. **127**, 527. The observed infrared transitions were taken from P. B. Davies and W. J. Rothwell, 1984, J. Chem. Phys. **81**, 5239; K. Kawaguchi, C. Yamada, S. Saito and E. Hirota, 1985, J. Chem. Phys. **82**, 1750; P. B. Davies, P. A. Hamilton and W. J. Rothwell, 1984, J. Chem. Phys. **81**, 1598; S. C. Foster, A. R. W. McKeller and T. J. Sears, 1984, J. Chem. Phys. **81**, 578; C. S. Gudeman, M. H. Begemann, J. Pfaff and R. J. Saykally, 1983, Phys. Rev. Lett. **50**, 727; T. Amano, 1983, J. Chem. Phys. **79**, 3595; D.-J. Liu, S.-T. Lee and T. Oka, 1988, J. Mol. Spectrosc. **128**, 236.

The vibrational state are as follows: v=0 is the ground, v=1 is $nu_2=1$ (bend), v=2 is $nu_2=2$ l=0 (bend), v=3 is $nu_3=1$ (C-O stretch), and v=4 is $nu_1=1$ (C-H stretch). Only l=0 components for the $nu_2=2$ state have been reported. These were fit to an effective Hamiltonian as in E. Hirota and Y. Endo.

The dipole moment was estimated theoretically by Woods *et al.*, above and was assumed for all the states.